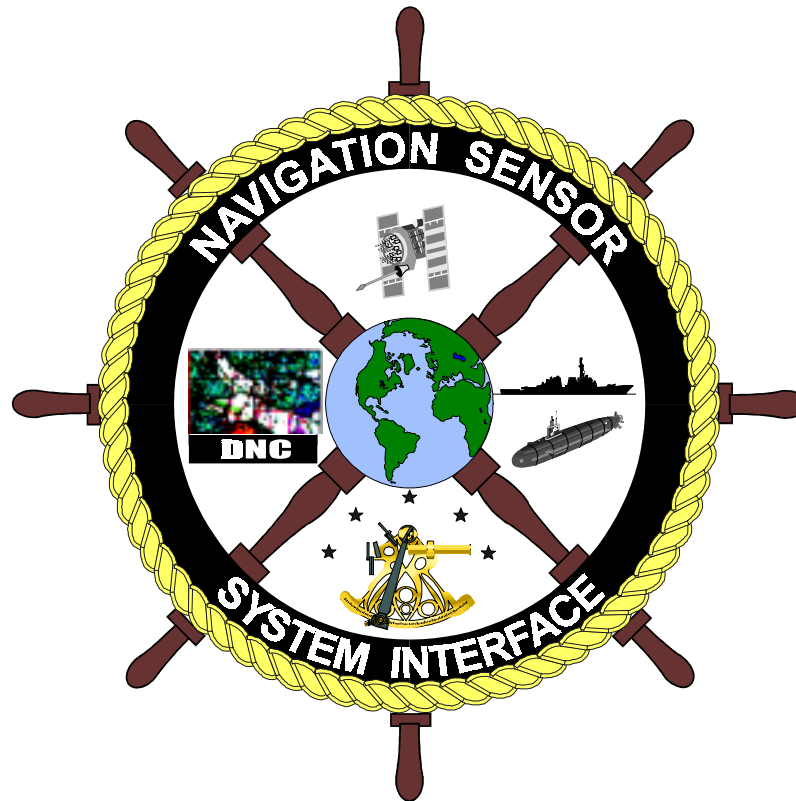# Navigation Sensor System Interface
NAVSSI AN/SSN-6E(V) LITE
BRIEF FOR FLEET N096 MEETING

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24 Aug 2001

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Outline

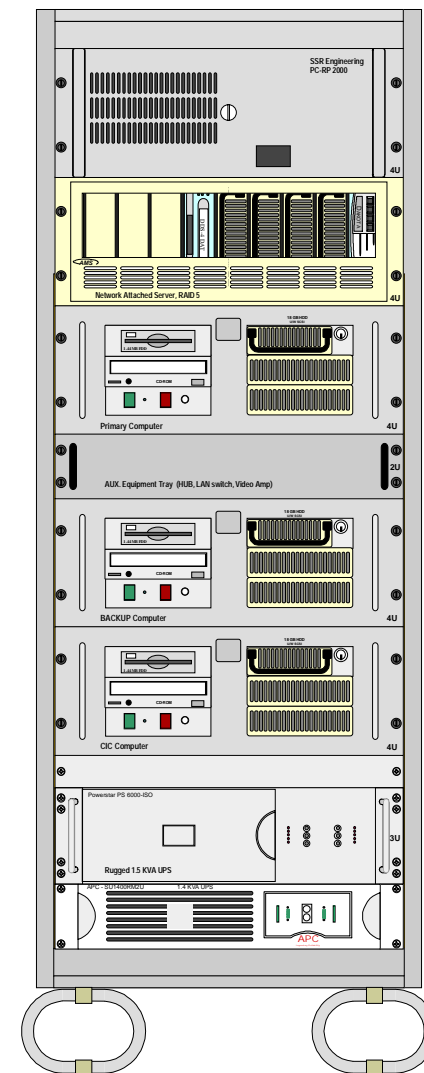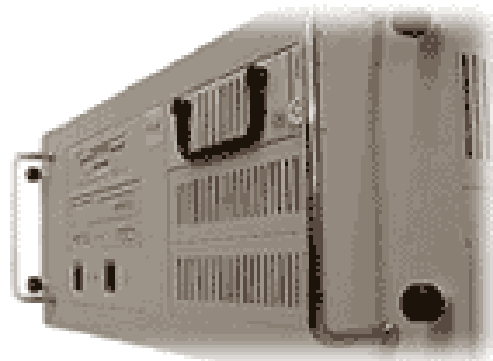- **Background**
- **Specific Questions**
- **Summary**

BACKGROUND
NAVSSI Lite
Hardware – Processors

- MARNER U10 UltraSparc Workstation
  - SUN *SPARCengine* ULTRA AXI
  - Solaris 8 Operating System
- 4U Ruggedized Rackmount
- Main Memory: 512MB
- One 36 GB SCSI LVD
- 32X CD-ROM Drive, Floppy Disk Drive
- Intecolor FP18
- NEC MultiSync LCD 1800

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BACKGROUND
NAVSSI
Human - Computer Interface

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BACKGROUND
Piloting Guidance

Automatically calculates:

- **cross-track error**
- **recommended course to steer accounting for set/drift**
- **nearest hazard**
- **next navigation aid**
- **depth**
- **distance and time to turn**

STANDARD NAVIGATION REPORT

```
Based on a    GPS 1 SPS     fix at  15:53:57
hold you B yds left of track.
Recommend you   come right tocourse 065.4.  Base course is  058.8.
Nearest hazard is     Shoal Water   at  2091 yds off the   Stbd Bow
Next Aid is     Nsf1    at 2280 yds off the Stbd Bow
Depth beneath the keel is  91 ft.
Distance remaining to turnpoint is 2678 yds.
Time to   turn    is   7.9 minutes. at 16:01.9.
Next course is 087.8 for a distance of   3.1 nm.
Set and drift is 242.6 at  0.6  kts.
```

Exit

Military standard navigation report

TURNPOINT SOLUTION DATA

```
Trackline: boston                         Rng
  Waypoint: 02 Boston2                    1101 yds

Turnpoint: Brg       Rng     Rec Crs    TTG       Time
           069.6 1087 yds     061.9   31.4 min   18:29.5

                     Turn        Turn
           Rud Spd   Brg         Aid
           15   1.0

Next Leg: Crs       Dist     Last WP:  Dist       ETA
          069.8    1.1 nm                2.5 nm    20:24:40
```

Exit

Tabular turnpoint solution data

BACKGROUND
Radar Overlay
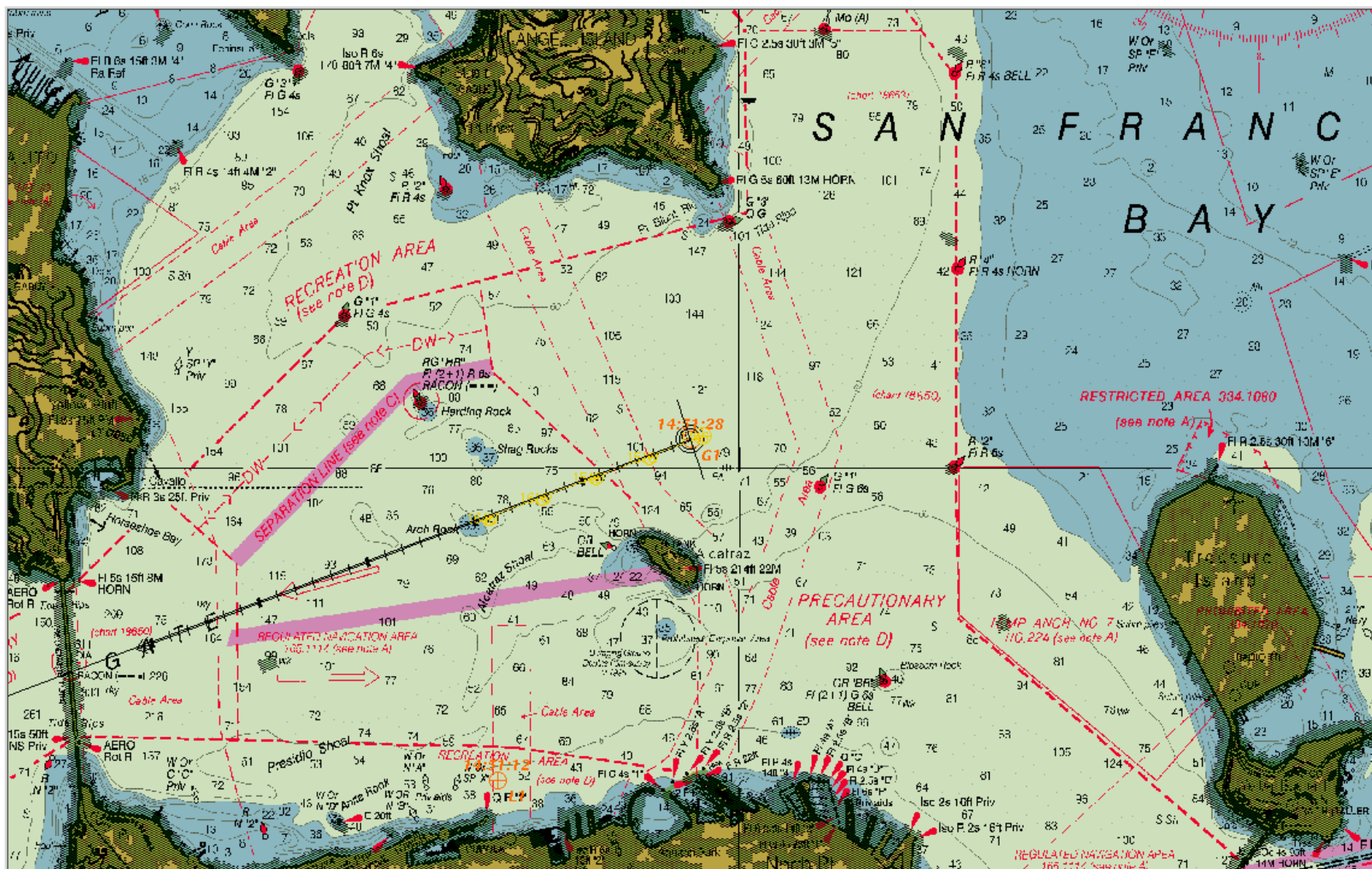
BACKGROUND
ECDIS-N Screen
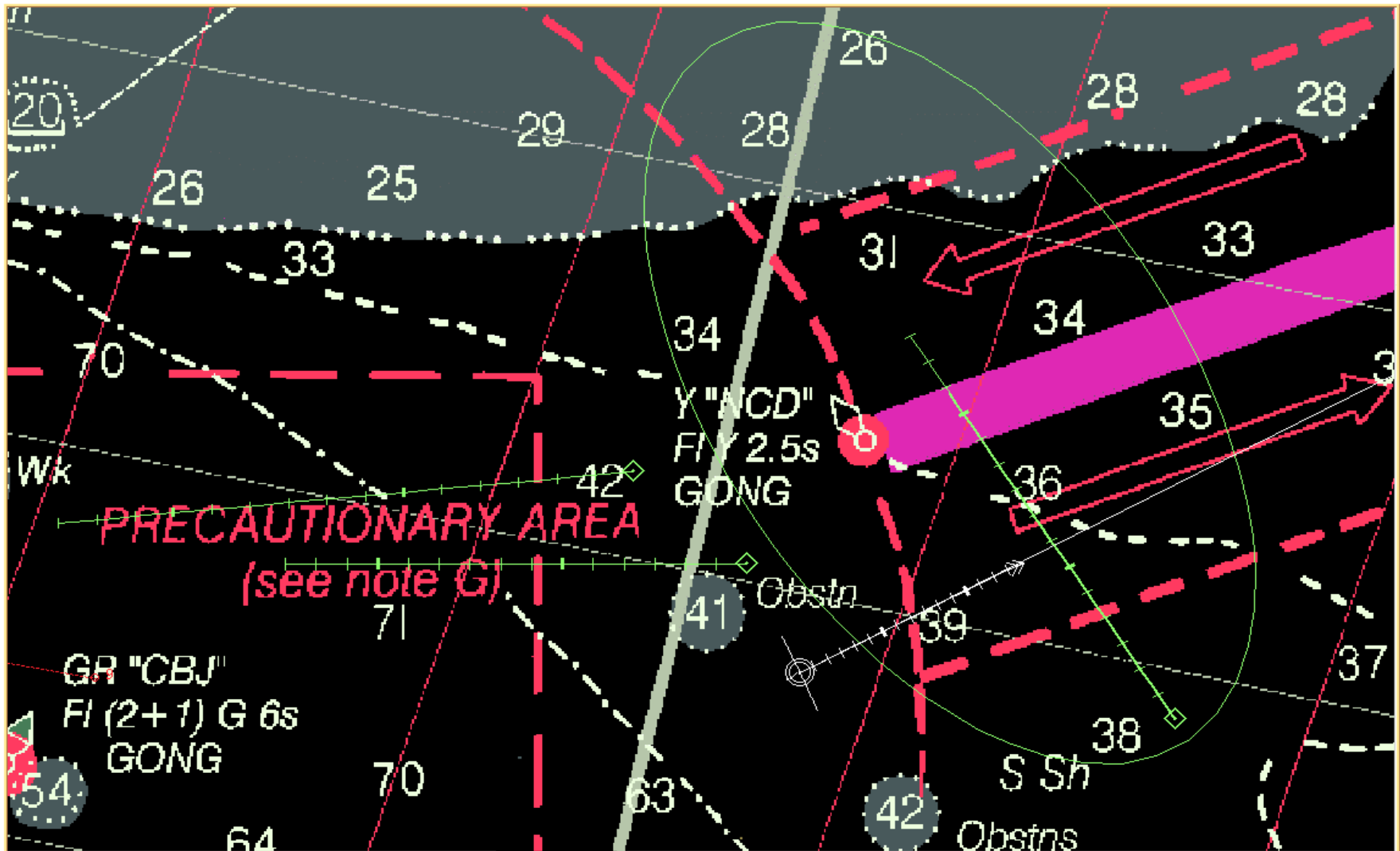
BACKGROUND
GOOD NEWS

- **COMMENTS from the Navigator on USS Hamilton**

  "Sir,
  The Build IV is much more capable than the Build that we previously had. I only got to play around with our old system for a day of underway but the one day out here showed that there are many more features on this Build and they are easier to figure out. Last night's game allowed us to follow a laid out track. The system gives a very good display of the info that we look for on the WRN-6, ie Time to turn, Dist to turn, bearing to turn. It also adds in a few other numbers such as recommended course to that point, next leg course and distance."

.**Comments from Gene Guest and Brian Boyce of MSI (Retired USN CAPT)**

"Bottom line - they like it. The CO has confidence in it and stated that he would be comfortable transitioning to paperless navigation. allows the input of visual LOP's and/or radar ranges to supplement the GPS position or in the event GPS info is lost or deemed unreliable. That feature also looked good.

NAVSSI with COMDAC gets a thumbs up from me at least based on what I saw and heard from the CO of the ship."

Specific Questions

System Specific Issues

System Development

What is the schedule for initial delivery of the ECDIS-N certifiable equipment and computer program?

NAVSSI Lite System was only a design concept in Feb 2001. PDR was held in Apr, CDR in Jun, Land based testing done in Aug, and presently NAVSSI Lite is undergoing prototype installation/shipboard testing on MCM-4. Based on satisfactory testing, MDA fleet release decision will be made on 25 Sept. First production installation begins Oct 1.

Compliance with OPNAVINST 9420.2

What is schedule for DT/OT?

DT/OT in Mar/Apr '02.

Have all requirements for certification of readiness to commence operational evaluation (OPEVAL) and/or follow-on operational test and evaluation (FOT&E) been met?

Draft TEMP is under review, DT, OTRR are still required prior to OPEVAL

Specific Questions

If so, what were the dates? If not, what is the schedule for compliance with the requirements?

Components of the system will be evaluated incrementally (to reduce risk) in a phased parallel approach that culminates in final system integration in February '02, followed by the formal DT/OT events in Mar/Apr '02.

Hardware   **VPF/Radar**   **Nav Mech.**

Phase I Sept 01

Phase II Oct-Nov 01

Phase III Feb-May 02

Certified as an ECDIS-N System
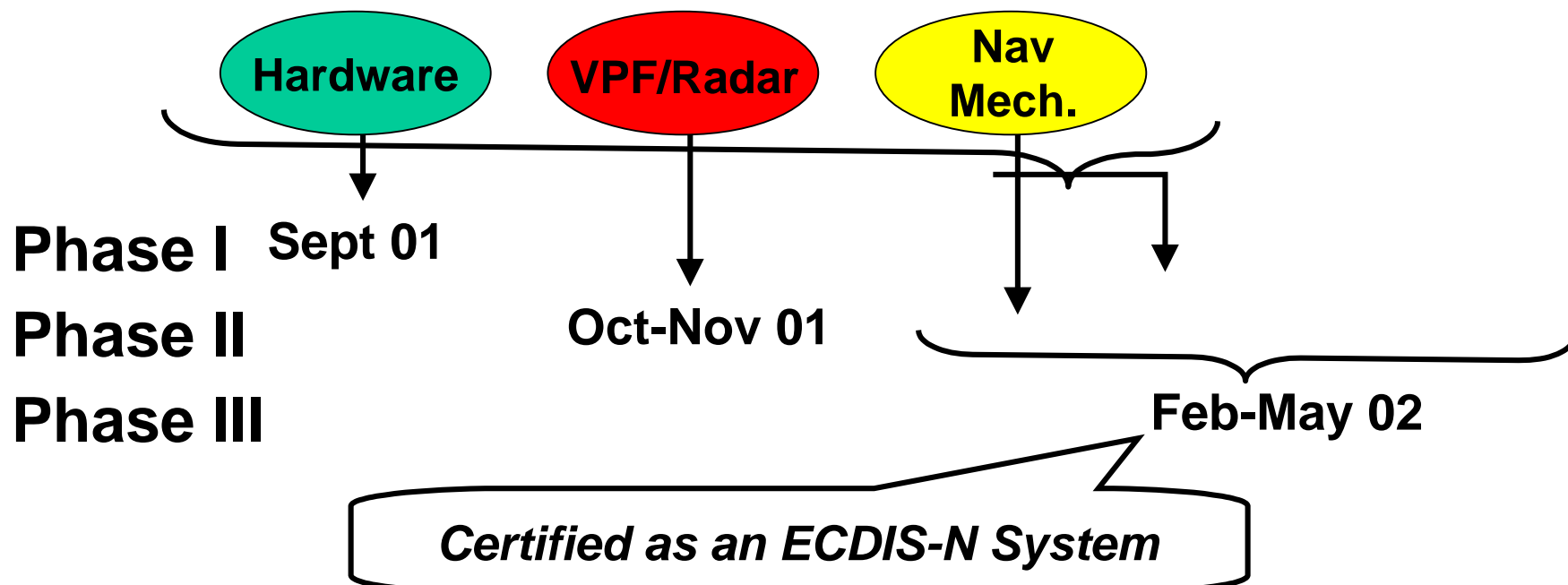
Specific Questions

Are there any requirements that the candidate system will not meet by Target Configuration Date? If so, what is the schedule for corrective action?

No. NAVSSI does not require TCD busts at this time

Are there any requirements that need amplification or clarification?

- **Shock testing for AEGIS platforms**
- **NAVCERT: What does this entail? Waiting for revised NAVSEAINST**
- **VDU spec not finalized ---this is a NIIMA action item.**
- **Geosym 4, which continues to evolve and still has not been approved/finalized**
- **DTDS: NIMA found problems with their DNC Test Data Set during the Direct Read Testing at C2CEN. Fixes still in progress. What is the re-look plan for systems that previously received a NIMA cert for Direct Read on earlier, incomplete prototype Test Data?**
- **Many 9420.2 requirements in section 3 have no corresponding sec 4 test methods. Working with OPTEVFOR**
- **DNCs: none have been certified for navigational use.**

Specific Questions

<u>**Security Issues**</u>

Are there any classification problems that need to be addressed either procedurally or in the equipment design? (i.e. Are there any issues associated with storing and/or displaying classified chart information on the identified system?)

No, NAVSSI Lite is capable of displaying classified charts by NSA

<u>**System Test**</u>

What is status of DNC direct read certification?

C2CEN is working directly with NIMA. An initial look was conducted in June '01 leading to required action by both C2CEN (some fixes to COMDAC) and NIMA (some fixes required to the Test Data Set). N096 and OPTEVFOR will be invited to observe follow-up testing this Fall. These tests are scheduled as follows:

Oct is the next scheduled date (w/o VDU) and Nov or Dec for VDU if VDU spec firm.

Specific Questions

Has a schedule for validation of system specific procedures for NAVCERT with candidate ECDIS-N been established with SPAWARSYSCEN Charleston (i.e. NAVSSI Block 3 Build 4, NAVSSI Lite, and VMS)? If not, what is the proposed schedule for this validation?

No NAVCERT contact has been established. The revised NAVSEA instruction has not been sent out for review.

CVBG Specific Issues

CVBG Equipment Procurement

Does equipment need to be procured to support shore-based training?

Yes, NAVSSI training involves a full interactive classroom. Each student will have their own NAVSSI (training version) system. These system are COTS and can be procured on short notice (approx three weeks)

Specific Questions

If it hasn't been procured, what is the procurement schedule (for each installation)?

After completion of design review, most likely Sept time frame

Does equipment need to be procured to meet the CVBG requirements?

Yes, NAVSSI Lite given the go ahead for 13 units.

The remaining units awaiting MDA procurement decision and FY02 funding.

Specific Questions

Are there any known funding or procurement issues that will prevent meeting of the schedule?

No, Schedule is aggressive, but meets NAVSSI Lite installation plans

<u>CVBG D-30 Process (Compliance with CLF CPF INST 4720.3A)</u>
Have required entries been made into the electronic CCB?
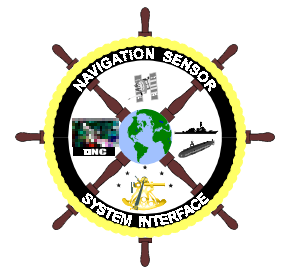
Yes

Will all final installations and/or computer program deliveries be completed by the identified Target Configuration Date(s) (TCD)?

Yes, future upgrade fall under minor software modification and are not considered TCD busts

Specific Questions

Installation

Are there any prerequisite installations/configurations required?

No, (WRN-6 or GVRC aboard, radar, fathometer)

What equipment changes are required?

Insert rack and wire diagrams, Field change Kit# 9

Specific Questions

Have all required organizations approved installation of equipment and computer programs?

Many different organization involved, however the bottom line is if FLTCINC wants it, they will get it. Currently NAVSSI Lite is approved for all ship classes, althrough not all members have voted yet.

If not, what is schedule for obtaining approval?

ECCB entry have been made. Awaiting ECCB approvals

How much time is required to complete each installation?

Average of 10 days, Two weeks if you include training

Specific Questions

Group	Homeport	Decom				Variant	NAVSSI Installed	Comments	Availability
MIW RG 2	INGLESIDE		FALCON	MHC	59	Lite		Prototype Install	Q4FY01
MIW RG 2	INGLESIDE		*HERON*	MHC	52	Lite			12/3/01 - 12/14/01(FMAV)
MIW RG 2	INGLESIDE		*PELICAN*	MHC	53	Lite			8/15/01 - 11/02/01 (PMA)
MIW RG 2	INGLESIDE		PIONEER	MCM	9	Lite			7/9/01 - 10/9/01
MIW RG 2	INGLESIDE		*CHAMPION*	MCM	4	Lite		Prototype Install	Q4FY01

Homeport	Decom				Variant	AVAILABILITY
		FY02-04 TCD 15 DEC 01				
		CCDG3/CDR31/CPR5/CVW14				
		ABRAHAM LINCOLN CVBG			**TCD 15 DEC 01**	
EVERETT		ABRAHAM LINCOLN	CVN	72	Lite	10/13/01-10/28/01
SDIEGO		SHILOH	CG	67	Lite	Q1FY02
SDIEGO		VALLEY FORGE	CG	50	None	
PEARL H.		FLETCHER	DD	992	Lite	Q1FY02
PEARL H.		PAUL HAMILTON	DDG	60	None	
BREMERTON	30-Sep-06	CAMDEN	AOE	2	Lite	Q1FY02
		BELLEAU WOOD ARG		MEU 11	**TCD 15 DEC 01**	
SDIEGO		BELLEAU WOOD	LHA	3	Lite	11/19/01-12/31/01
SDIEGO	30-Sep-05	DENVER	LPD	9	Lite	10/3/01-10/9/01
SDIEGO	30-Sep-08	MOUNT VERNON	LSD	39	Lite	8/6/01-9/28/01
		MEF 02-2			**TCD 28 FEB 02**	
PEARL H.	30-Sep-09	CROMMELIN	FFG	37	Lite	Q1FY02
SDIEGO		HIGGINS	DDG	76	Lite	Q1FY02
SDIEGO		MILIUS	DDG	69	None	
		CDOPS JIATF WEST			**TCD 17 DEC 01**	
SDIEGO		FIFE	DD	991	Lite	Q1FY02

Specific Questions

Group	Homeport	Decom				Variant	NAVSSI Installed	AVAILABILITY
			FY02-05 TCD 10 JAN 02					
			CCDG2/CDS26/CPR2/CVW17					
			G. WASHINGTON JTG			**TCD 10 JAN 02**	**DEPLOY 20 JUL 02**	
GW-NAS 02	NORFOLK		G. WASHINGTON	CVN	73	None	Block 3 Build 4	
GW-NAS 02	NORFOLK		NORMANDY	CG	60	Lite	Block 2	11/22/01 - 12/2/01
GW-NAS 02	NORFOLK		MONTEREY	CG	61	None	Block 2	
GW-NAS 02	NORFOLK		BARRY	DDG	52	Lite		10/15/01 - 12/19/01
GW-NAS 02	NORFOLK		LABOON	DDG	58	Lite		12/13/01 - 12/9/01
GW-NAS 02	NORFOLK		MAHAN	DDG	72	None	Block 3 Build 4	
GW-NAS 02	NORFOLK	30-Sep-05	A.W. RADFORD	DD	968	Lite		11/8/01 - 12/14/01
GW-NAS 02	NORFOLK		KAUFFMAN	FFG	59	Lite		11/13/01 - 12/9/01
GW-NAS 02	EARLE	30-Sep-01	SUPPLY	AOE	6	None		
			NASSAU ARG			**TCD 10 JAN 02**		
GW-NAS 02	NORFOLK		NASSAU	LHA	4	Lite	Block 2	11/16/01 - 12/3/01
GW-NAS 02	NORFOLK	30-Sep-05	AUSTIN	LPD	4	Lite		10/27/01 -11/4/01
GW-NAS 02	LTL CRK		TORTUGA	LSD	46	Lite		10/29/01 - 11/9/01
			MIW READY GROUP 2			**TCD 15 FEB 02**		
MIW RG 2	INGLESIDE		OSPREY	MHC	51	Lite		12/3/01 - 12/14/01
MIW RG 2	INGLESIDE		*HERON*	MHC	52	Lite		12/3/01 - 12/14/01
MIW RG 2	INGLESIDE		*PELICAN*	MHC	53	Lite		9/13/01 - 12/3/01
MIW RG 2	INGLESIDE		*FALCON*	MHC	59	Lite		Q4FY01
MIW RG 2	INGLESIDE		PIONEER	MCM	9	Lite		Q4FY01
MIW RG 2	INGLESIDE		*CHAMPION*	MCM	4	Lite		Q4FY01
			SNFL 2-02			**TCD 1 JAN 02**		
SNFL 2-02	MAYPORT		DEWERT	FFG	45	Lite		Q1FY02
			UNITAS 43					
UNITAS	LTL CRK		ASHLAND	LSD	48	Lite		10/1/01 - 10/12/01
			UNITAS			**TCD 7 JAN 02**		
UNITAS	MAYPORT	30-Sep-03	*SAMUEL E MORISON*	FFG	13			
UNITAS	NORFOLK		SIMPSON	FFG	56	Lite		9/15/01 -9/30/01
			UNITAS			**TCD 1 APR 02**		
UNITAS	MAYPORT	30-Sep-08	O'BANNON	DD	987	Lite	Block 2	Q2FY02
UNITAS	PASCAGO	30-Sep-08	JOHN L HALL	FFG	32	Lite		10/15/01 - 12/14/01

Specific Questions

Which required organizations have agreed to the proposed schedule(s)?

Dependent on ship class, data can be found in ECCB.

Typical results so far:

CNAP	**approved**
SPAWAR	**approved**
CNSP	**approved**
PMS312	**none**
BGCDR	**some**
CNSL	**some**
C2F	**some**
BRB	**some**
CINC	**some**

Who (i.e. shipyard, Alteration Installation Team, etc.) will perform the installations?

AIT

Specific Questions

What specific documentation has been prepared to support the installations?

JCF, SAR, SID, TM, APL, Training, ICD. All document available in draft form (SCCP, JCFs, ICDs, SARs, Tech Manuals, APL, Maintenance). Documentation awaiting final approval.

Have any issues been identified that will delay and/or prevent installation?

Tycom waiver on ILS certification documentation (commonly waived for most programs), SECNAV within 5 years DECOM waiver.

Awaiting OPNAV for ILS cert waiver, SECNAV waiver submitted to TYCOMS for action

Summary

Summary

- **NAVSSI Lite schedule is aggressive but "doable"**
- **Some TCD waivers will be required**

How can N096 help?

- **Need assistance on SECNAV waiver**
- **Need a coordinated FLT and CNO message on waiver to standard installation process**
- **May need support for TCD waivers**

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BACK UP